

I/WE CLAIM:

1. A method for aseptically bottling aseptically  
sterilized foodstuffs comprising the steps of:  
providing a plurality of bottles;  
aseptically disinfecting the plurality of bottles;  
aseptically filling the aseptically disinfected  
plurality of bottles with the aseptically sterilized  
foodstuffs; and  
filling the aseptically disinfected plurality of  
bottles at a rate greater than 100 bottles per minute.

2. The method according to claim 1, wherein the plurality  
of bottles are made from a glass.

3. The method according to claim 1, wherein the plurality  
of bottles are made from a plastic.

4. The method according to claim 3, wherein the plastic is  
polyethylene terephthalate.

5. The method according to claim 3, wherein the plastic is  
high density polyethylene.

1 6. The method according to claim 1, further including  
2 capping the bottle with an aseptically disinfected lid.

1 7. The method according to claim 1, wherein the plurality  
2 of bottles has an opening size to height ratio of less than  
3 one.

1 8. The method according to claim 1, further including  
2 disinfecting the interior of the plurality of bottles with a  
3 hot hydrogen peroxide spray.

1 9. The method according to claim 8, wherein disinfecting  
2 the interior of the plurality of bottles includes the  
3 application of the hot hydrogen peroxide spray for about 1  
4 second and the activation and removal of the hot hydrogen  
5 peroxide using hot aseptically sterilized air for about 24  
6 seconds.

1 10. The method according to claim 1, further including a  
2 feedback control system for maintaining aseptic bottling  
3 conditions.

1 11. The method according to claim 1, wherein disinfecting  
2 is provided by hydrogen peroxide.

1 12. The method according to claim 1, wherein disinfecting  
2 is provided by oxonia.

1 ~~13. The method according to claim 1, wherein disinfecting~~  
2 ~~the outside surfaces of the plurality of bottles is provided~~  
3 ~~by hydrogen peroxide.~~

1 ~~14. The method according to claim 13, wherein disinfecting~~  
2 ~~the outside surface of the plurality of bottles includes~~  
3 ~~about 1 second for the application of the hot hydrogen~~  
4 ~~peroxide spray and about 24 seconds for the activation and~~  
5 ~~removal of the hot hydrogen peroxide using hot aseptically~~  
6 ~~sterilized air.~~

1 15. The method according to claim 1, wherein disinfecting  
2 the outside surfaces of the plurality of bottles is provided  
3 by oxonia.

1 16. The method according to claim 1, wherein the step of  
2 filling the aseptically disinfected bottling further

13 Cont'd  
1 comprises: filling the aseptically disinfected bottling at a  
2 rate greater than 360 bottles per minute.

17. The method according to claim 1, wherein the  
aseptically sterilized foodstuffs are sterilized to a level  
producing at least a 12 log reduction in *Clostridium*  
*botulinum*.

18. The method according to claim 1, wherein the  
aseptically disinfected plurality of bottles are sterilized  
to a level producing at least a 6 log reduction in spore  
organisms.

19. The method according to claim 8, wherein the residual  
level of hydrogen peroxide is less than .5ppm.

20. A method for automatically aseptically bottling  
aseptically sterilized foodstuffs comprising the steps of:  
providing a plurality of bottles;  
aseptically disinfecting the bottles at a rate greater  
than 100 bottles per minute; and  
aseptically filling the bottles with aseptically  
sterilized foodstuffs.

1 21. A device for aseptically bottling aseptically  
2 sterilized foodstuffs comprising:

3 means for providing a plurality of bottles;

4 means for aseptically disinfecting the plurality of  
5 bottles;

6 means for aseptically filling the aseptically  
7 disinfected plurality of bottles with the aseptically  
8 sterilized foodstuffs; and

9 means for filling the aseptically disinfected plurality  
10 of bottles at a rate greater than 100 bottles per minute.

1 22. A device for automatically aseptically bottling  
2 aseptically sterilized foodstuffs comprising:

3 means for providing a plurality of bottles;

4 means for aseptically disinfecting the bottles at a  
5 rate greater than 100 bottles per minute; and

6 means for aseptically filling the bottles with  
7 aseptically sterilized foodstuffs.

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1 23. An aseptic processing apparatus for aseptically  
2 bottling aseptically sterilized foodstuffs comprising:  
3 a sterile tunnel for surrounding a plurality of bottles  
4 with pressurized sterile air;  
5 a conveying apparatus for moving the plurality of  
6 bottles through the sterile tunnel;  
7 a bottle infeed, sterilization and conveying apparatus  
8 for sterilizing an exterior surface of each bottle and for  
9 feeding the sterilized bottles into the sterile tunnel;  
10 an interior bottle sterilization apparatus for applying  
11 a sterilant to an interior surface of each bottle;  
12 an activation and drying apparatus for activating and  
13 removing the sterilant from the interior surface of each  
14 bottle;  
15 a product filler apparatus for filling the aseptically  
16 sterilized plurality of bottles with the aseptically  
17 sterilized foodstuffs;  
18 a lidding apparatus for applying a sterilized lid to  
19 each bottle; and  
20 a bottle discharge apparatus for removing the bottles  
21 from the sterile tunnel.

1 24. The aseptic processing apparatus according to claim 23,  
2 wherein the sterile tunnel further includes a plurality of  
3 partitions forming a plurality of sterilant concentration  
4 zones.

1 25. The aseptic processing apparatus according to claim 23,  
2 wherein each bottle has an opening size to height ratio of  
3 less than one.

1 26. The aseptic processing apparatus according to claim 23,  
2 wherein the sterilant is hydrogen peroxide.

1 27. The aseptic processing apparatus according to claim 23,  
2 wherein the sterilant is oxonia.

1 28. The aseptic processing apparatus according to claim 23,  
2 further including a lid sterilization apparatus.

1 29. The aseptic processing apparatus according to claim 23,  
2 wherein the plurality of bottles are made from plastic.

1 30. The aseptic processing apparatus according to claim 29,  
2 wherein the plastic is polyethylene terephthalate.



1 31. The aseptic processing apparatus according to claim 29,  
2 wherein the plastic is high density polyethylene.

1 32. The aseptic processing apparatus according to claim 23,  
2 further including a feedback control system for maintaining  
3 aseptic bottling conditions.

1 33. The aseptic processing apparatus according to claim 23,  
2 wherein the product filling apparatus fills the plurality of  
3 bottles at a rate greater than 360 bottles per minute.

1 34. The aseptic processing apparatus according to claim 23,  
2 wherein the sterile tunnel encloses the interior bottle  
3 sterilization apparatus, the activation and drying  
4 apparatus, the product filler apparatus, and the lidding  
5 apparatus.